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Appn. No. 10/759,519  
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## REMARKS

To expedite prosecution of preferred embodiments, Applicants have amended claim 1 to incorporate in it the subject matter of claims 7, 8 and 19. Claim 9 has been amended to include the subject matter of claims 11, 7 and 19. Claim 12 has been amended to include the subject matter of claims 12, 7, and 19. Claim 17 has been amended to include the subject matter of claims 18 and 19. Accordingly, no new matter has been introduced by the virtue of these amendments and their entry is respectfully requested. Claims 7, 8, 11, 12, 18 and 19 have been cancelled, to comply with the amendment.

Claim 1 has been further amended to delete the word "and" from step (b) between the words "dilution" and "in a multiplex" as suggested by the Examiner. Claim 9 has been amended similarly. Claim 1, step (d) has been amended to delete the article "the" between the phrases "genotypes of" and "at least" as suggested by the Examiner. The amendments are clerical and thus do not introduce new matter and their entry is respectfully requested.

Claims 3, 4, 5 and 6 have been amended to conform with the amendment to Claim 1. Claims 5 and 6 have been amended to clarify the grammar as suggested by the Examiner. As such, these amendments are clerical and do not introduce new matter and their entry is respectfully requested.

The Examiner objected to claims 1 and 9.

Applicants have amended these claims as described, *supra*. These amendments obviate the objections. Accordingly, the Applicants respectfully submit that the objections have been overcome and should therefore be withdrawn.

The Examiner rejected claims 1-8 and 19 under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The Applicants have amended claims 1, and 5-6 as suggested by the Examiner to make explicit that which was implicit. Claim 19 has been cancelled. Accordingly, the rejection has been obviated and should be withdrawn.

The Examiner rejected claims 1, 5, 6 and 19 under 35 U.S.C. 102(b) as being anticipated by Furlong et al et al (1993).

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While Applicants disagree with the rejections, in order to expedite prosecution, they have elected to pursue prosecution of a preferred embodiment. The amendment obviates this rejection.

Accordingly, the Applicants respectfully submit that the rejection of claims 1, 5, 6, and 19 has been rendered moot.

The Examiner rejected claims 1, 2, 4-6, 8, and 19 under 35 U.S.C. 103(a) as being unpatentable over Ruano et al (1990) in view of Furlong et al (1993).

The Applicants respectfully disagree. However, to expedite prosecution of a preferred embodiment, the claims have been amended as described, *supra*. Neither Ruano nor Furlong teach genotyping using primer extension and mass spectrometric detection from the multiplex PCR reaction.

Accordingly, the Applicants respectfully submit that the rejection of claims 1, 2, 4-6, 8, and 19 has been rendered moot.

The Examiner rejected claims 3 and 9-11 under 35 U.S.C. 103(a) as being unpatentable over Ruano et al (1990) in view of Furlong et al (1993), and further in view of Drysdale et al (2000).

The Applicants respectfully disagree. However, to expedite prosecution of a preferred embodiment, the claims have been amended as described, *supra*. Neither Ruano nor Furlong or Drysdale teach genotyping using primer extension and mass spectrometric detection from the multiplex PCR reaction.

Accordingly, the Applicants respectfully submit that the rejection of claims 3 and 9-11 has been rendered moot.

The Examiner rejected claim 7 under 35 U.S.C. 103(a) as being unpatentable over Ruano et al (1990) in view of Furlong et al, and further in view of Ross et al (1998).

The Applicants respectfully disagree and submit that the rejection be withdrawn for the following reasons. To expedite prosecution of a preferred embodiment, the claims have been amended to include both high multiplexing (at least four primer pairs) and multiple repetition (12-18 replicas) from the original diluted sample.

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The combination of Ruano, Furlong and Ross, does not teach the combination of both high multiplexing with 12-18 replicas and using at least four different primer pairs.

The combination of these references would not be expected to result in an improvement over either technique. Rather, it would be expected that combining multiplexing and replications would hinder the results. For example, Furlong at page 1194 teaches that approximately 5% of the results had to be discarded because they showed either amplification of abnormally sized products or amplification of both alleles at the same locus/loci.

Ruano explicitly cautions that one will have to optimize reaction conditions for each separate primer pair, stating at page 6297, column one, "In general, it will likely be necessary to optimize booster PCR conditions separately for each region to be studied."

Ruano further cautions against contamination problems in dilute samples (see e.g. page 6297, column two). Accordingly, Ruano's statement about avoiding contamination and separate optimization of reaction conditions for each PCR reaction for each primer with the teaching of Furlong that multiplexing causes some contamination of reactions with incorrect amplification products would have lead its skilled artisan to use either multiplexing or multiple repeats – but not both of them together.

Accordingly, the Applicants respectfully submit that the rejection of claim 7 should be withdrawn.

The Examiner rejected claims 12-18 under 35 U.S.C. 103(a) as being unpatentable over Ruano et al (1990) in view of Furlong et al (1993), and further in view of Rein et al (1998).

The Applicants respectfully disagree. However, to expedite prosecution of a preferred embodiment, the claims have been amended as described, *supra*. Neither Ruano, nor Furlong or Rein teach use of both multiplexing with at least four primers and using 12-18 replicas.

Accordingly, the rejection has been rendered moot.

The Examiner provisionally rejected claims 1-19 on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-18 of copending Application No. 10/542,043 in view of Furlong et al (1993).

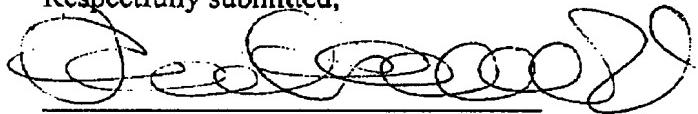
The Applicants will submit a Terminal Disclaimer with respect to Application No. 10/542,043 should the claims in the present application be found otherwise patentable.

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In conclusion, in view of the amendments to the claims and arguments presented herewith, the Applicants respectfully submit that all the claims are now in condition for allowance. At minimum, the issues on Appeal should be reduced. Early and favorable consideration is solicited. The Examiner is encouraged to contact the undersigned with questions regarding this amendment.

Should any fee deficiencies be associated with this submission, the Commissioner is authorized to debit such deficiencies to the Nixon Peabody Deposit Account No. 50-0850. Any overpayments should be credited to said Deposit Account.

Respectfully submitted,



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